

## WHAT IS CLAIMED IS:

- 1     1.     An operational amplification circuit comprising a differential  
2     amplification circuit and an outputting circuit,  
3             said differential amplification circuit including:  
4                 a first input-stage transistor circuit to which an input signal is  
5     inputted through an inverting input terminal;  
6                 a second input-stage transistor circuit to which an input signal is  
7     inputted through a non-inverting input terminal;  
8                 third and fourth transistors connected to said first and second  
9     input-stage transistor circuits, respectively, to constitute a current mirror circuit;  
10                a fifth transistor connected to a junction between said first  
11    input-stage transistor circuit and said third transistor;  
12                a sixth transistor connected to a junction between said second  
13    input-stage transistor circuit and said fourth transistor; and  
14                a current supply circuit for supplying a current to said first and  
15    second input-stage transistor circuits and further for supplying a current to said  
16    fifth and sixth transistors,  
17                a current flowing in said sixth transistor being in proportion to the  
18    product of a current flowing in said fifth transistor, a ratio of current amplification  
19    factors of said third and four transistors and a ratio of current amplification factors  
20    of said fifth and sixth transistors,  
21                said outputting circuit being made to output a low or high logical level on  
22    the basis of the relationship between said current to be supplied from said current  
23    supply circuit to said sixth transistor and said current flowing in said sixth  
24    transistor,  
25                said current supply circuit being made such that, when the supply of said  
26    current to said first and second input-stage transistor circuits comes to a stop, said  
27    current to be supplied to one of said fifth and sixth transistors increases while said  
28    current to be supplied to the other does not vary.

1     2.     The circuit according to claim 1, wherein said current supply circuit is a  
2     multi-collector transistor including a first collector connected to said first and  
3     second input-stage transistor circuits, a second collector connected to one of said  
4     fifth and sixth transistors and a third collector connected to the other of said fifth  
5     and sixth transistors so that, when the supply of a current from said first collector  
6     comes to a stop, a portion of a current flowing in its emitter flows in said second  
7     collector.

1     3.     An overheat detecting circuit comprising:  
2             temperature detecting means whose output voltage varies in accordance  
3     with a variation of temperature;  
4             threshold voltage generating means for generating a predetermined  
5     threshold voltage;  
6             comparison means for making a comparison between said output voltage  
7     of said temperature detecting means and said threshold voltage;  
8             a transistor which turns on/off in accordance with a comparison result in  
9     said comparison means; and  
10            a multi-collector transistor whose first collector is connected to said  
11     temperature detecting means and second collector is connected to said transistor  
12     so that a current is supplied through said first collector to said temperature  
13     detecting means and a current is supplied through said second collector to said  
14     transistor, and which is made to, when the supply of said current through said  
15     second collector to said transistor comes to a stop, increase said current flowing  
16     through said first collector into said temperature detecting means.

1     4.     A comparison circuit comprising:  
2             threshold voltage generating means for generating a threshold voltage by  
3     means of resistance division of a plurality of resistors;

4            comparison means for making a comparison between an input signal  
5   inputted through an input terminal and said threshold voltage generated from said  
6   threshold voltage generating means;  
7            a transistor which turns on/off in accordance with a comparison result in  
8   said comparison means; and  
9            a multi-collector transistor whose first collector is connected to a junction  
10   between said plurality of resistors and second collector is connected to said  
11   transistor so that a current is supplied through said first collector to at least one of  
12   said plurality of resistors and a current is supplied through said second collector to  
13   said transistor, and which is made to, when the supply of said current through said  
14   second collector to said transistor comes to a stop, increase said current flowing  
15   through said first collector to at least the one of said plurality of resistors.